



At this time each year it is necessary to pause and take stock of the administration of our Society. The announcement of the meeting in itself may not appear to be very exciting but it is most important that as many members as possible attend because the reports prepared by individual members of the retiring committee are delivered, the subscription rate is reviewed and the election of the new committee must be accomplished. Proceedings will begin at 7.30pm on Tuesday 4th October in the Marconi College, Arbour Lane, Chelmsford.

As the present committee have all volunteered to maintain their services, the transition into the 1994/95 season should be reasonably straightforward and the meeting will be able to move into a Technical Forum session which we know you will all enjoy, however, the evening is dependent on the participation of all the attending members.

Following the reports and the retirement of the old committee, the President will invite actions:-

1) Nominations for committee vacancies. 2) Voting for the committee election. 3) Suggestions for future lectures. The meeting also includes the announcement of nominations and voting for our Annual Award of Merit. To add interest to the evening we will draw the Jackpot Raffle for a Bottle of Whisky as well as the regular monthly fund raising draw with useful prizes. We look forward to seeing you all there.

DATES FOR YOUR DIARY

4 Oct. C.A.R.S. ANNUAL GENERAL MEETING.

7/9 Oct. R.S.G.B. International H.F. & I.O.T.A. Convention.

21/22 Oct. Leicester Amateur Radio Show - Granby Halls.

1 Nov. CLUB MEETING - Grand Junk Sale.

Saturday 17th December - CHRISTMAS DINNER.

LAST MONTHS MEETING - Charles, GØGJS

Brian's second presentation on gliding, had a different objective. He lead us into a short study of a propagation phenomenon the name of which was revealed to be "The Inversion".

Brian, who is a Fellow of the Royal Meteorological Society, introduced us to the origin and formation of the weather systems which lead to the development of inversions. By means of a series of diagrams on the OHP he traced the static frontal systems which encircle the globe especially the one which provides the weather in our latitudes viz: The Polar Front. The more remote one at the pole being entitled the Arctic Front. He likened the undisturbed front to a conical "cat's collar", sloping from the ground level northwards to the very top of the atmosphere although at that height it is tenuous and ill defined. He reminded us that there were similar things in the southern hemisphere being roughly mirror images of ours in the north. We learned that the Jet Streams rushing from west to east at up to 200 knots or more occasionally dip down so low as to strike the frontal surface and induce travelling waves which proceed eastwards or north eastwards at between 5 and 25 knots. The demonstration by means of a "loo roll" clearly showed the effect produced.

The crest of the wave so created becomes the virtual eye of a depression with low pressure due to the ambient low pressure and the augmentation from the internal pressure of the jet stream which occurs due to the well known Bernoulli's Principle (when gas accelerates its pressure falls).

Brian then traced the air movements from the highs surrounding the lows and he showed a time lapsed series of weather charts illustrating the relative movements of groups of highs and lows about each other, taken throughout October 1993.

There followed the gliding link we had anticipated and we were shown the several ways by which rising air masses occur, some due to the terrain and others due to local heating of the air by contact with the ground. He showed the sequence of events during the subsequent thermic ascents with a diagram of the lapse rates to illustrate the way in which eventually a parcel of air cools as it rises, condenses out its moisture and liberates enormous quantities of latent heat. Together with some infrared off the accompanying cloud layer, this heat is sufficient to reverse the usual trend of falling temperature and so produces a steep rise in temperature above the cloud - hence the Inversion.

Brian stated that the three requirements for a really significant inversion are:- 1) substantial rise in humidity. 2) steepish rise in temperature and 3) descending air above to act as a lid to keep the inversion virtually stationary.

This last requirement, we learned, is fulfilled by the fact that air in a high is always descending especially in the summer time because air supplied to the lows by the highs must come from somewhere and it is from above whence it comes.

At this point in his presentation Brian brought in the radio aspect because as he explained the relatively stationary air, above the clouds in the inversion collects free ions from the outer atmosphere and from the action of sunlight upon the dry warm air creates a medium in which the velocity of radio waves increases slightly. Some Doppler has been observed.

Brian's diagrams showed how the wave fronts of an electromagnetic wave are accelerated as they enter such a region so that the ray path is refracted away from the normal at the "point" of contact. We were reminded of this principle of physics by a diagram of the classical school days experiment of seeing a coin at the bottom of a water-filled vessel appear closer to the surface than it really is. We saw that total internal refraction could occur if the angle of entry was correct (in the region of ½ degree) leading to a duct which could propagate a radio wave to considerable distances beyond the ground wave range and with little attenuation. The wave would escape at any discontinuity as we saw by a simple experiment wherein light was admitted into the lower end of a plastic box lid and was transmitted internally and 'sprayed' out at the top in a completely opposite direction. A discontinuity on the plastic box lid glowed brightly confirming the principle stated.

At this stage Brian said that this was his crunch point and he hoped we would talk about the project and log some results. He reminded us that the inversions usually occur anywhere from a few feet to say 5000ft above the ground and that one's signals might have to traverse such a zone before they can reach any E or F layers higher up. Lastly we were shown a weather map from Brian's earlier series which depicted an inversion extending from Northern Ireland to South Jutland in Denmark and he quoted some data from his Met Society sources which succinctly co-related with reports from aircraft pilots who experienced reception of VOR beacons (VHF band) over great distances where normally none would be received.

As a tailpiece and to entertain us, Brian presented a short video of remarkable exhibition flying where a Mr Hoover, piloting an executive twin engined turboprop, feathered both engines and performed incredible manoeuvres - some inches above the runway by means of energy obtained from near vertical dives. A final shot of him pouring iced tea from a jug into a glass whilst the aircraft was rolled took one's breath away. Not a drop was spilled!!

Brian answered some questions from the audience and left us all with much food for thought; paramount was the impression that his airmanship as a glider pilot must be much enhanced as a consequence of his deep understanding of the elements. Thank you Brian for an interesting evening and your assistance with preparing this report.

COMMITTEE MEETING

The next Committee meeting will be held at 7.30pm on Wednesday 12th October, in Telford Lodge, you are welcome to join us.

CHRISTMAS DINNER

It's time to start planning our Christmas dinner again, where does the time go! Your Committee have decided to support the same venue as last year, in the Dining room associated with Telford Lodge (in the grounds of the Marconi College). There will be a slight difference this year, we will be in the dining room right from the start of the evening and drinks will be available. It will NOT be necessary to assemble in the Bar and then cross over for the dinner, which could be very inconvenient if the weather is hostile.

We will meet for 7.30p.m. for dinner at 8.00p.m. The Menu will be:-



Melon and Grape cocktail
or

Minestrone Soup

Roast Turkey Garni

Roast Potatoes, Brussel Sprouts and Baton Carrots

Christmas Pudding and Brandy Sauce

or

Raspberry Trifle

Coffee and Mince Pies.



Harry Lowe, G2HPF, ☎ (0245)467584 our Social Secretary, will be pleased to take names and payments of £12.50 per person. Bookings to be made by 6th December (Club meeting), so that we can inform the College of the final number, unfortunately after this date it will not be possible to make refunds.

DF NEWS 1 - Dick, G3WHR - Chelmsford Events

The fourth Chelmsford event took place on 19th August with Ian Butson as the hidden station. The start bearing went to the South of Colchester which brought the river Colne into play. My second bearing from near the Zoo indicated that G4HKC/P was probably on the far side of the Colne but the cross was very near to the Tip of Arlesford creek. A further bearing from the University confirmed that I was on the right side of the river and that Ian was on the Brightlingsea side of the creek. However, there's a saying in DF that you never know which bank the transmitter is on until your toes are in the water. Despite a further bearing from Thorington I found myself all alone on the wrong side of the creek. I had to retrace my path via Arlesford and it was getting dark when I arrived in the vicinity of the transmitter. I was just in time to see Phillip and Andrew climbing out of a thick piece of scrub and followed their trail back to Ian.

Results.	1	Phillip Cunningham	8.48
	2	Andrew Mead	8.49
	3	Dick Brocks	8.54
	4	Roy Emeny	9.00

DF NEWS 2

Mike Hawkins provided the hidden station for the final Chelmsford event. We anticipated that the start bearing might go towards Halstead, but not this time - we were headed for Colchester. I parked up near the avenue of Remembrance and tried - unsuccessfully - to get two bearings on the 8.00 transmission. It was clear from the signal strength that G3WMM/P was not far away, somewhere between the avenue and the railway. All teams approached from the road, having to cross the river and a small stream. The river was the easy bit, there was a convenient bridge, but the stream was a different matter. The recent wet weather had turned the ground around the stream into a swamp with very variable depth. There were places where it was only ankle deep and there were places where you could go in up to your waist. Unfortunately it was impossible to see which way to go by torchlight and you just had to experiment by wading in. Everybody had their own tale about how they got across, and we all ended up with wet feet or worse. Once over the swamp we still had to find the transmitter, Mike had taken advantage of the fine weather and some thick bushes near the railway. My suspicions about one particular bush were confirmed by the sound of Phillip crashing in from the opposite side.

Results	1	Phillip Cunningham	8.42
	2	Dick Brocks	8.43
	3	Peter Larbalestier	8.44
	4	Andrew Mead	8.55
	5	Roy Emeny	8.57
	6	Richard Witney	—

Other DF News.

The RSGB National Qualifying events have been taking place throughout the country. Chelmsford and Colchester teams have enjoyed some success and we have four teams in the National Final; Andrew & Phillip, Mike Hawkins, Andy Collett and Me. As I type this, the batteries are on charge.

The Mid-Essex Trophy event will take place on Sunday 16th October. For details of the start please contact me nearer the day.

Response by C.A.R.S. to D.T.I. Consultative Document

Further to the report last month, we have received a cover note from Simon Burns Esq. MP, enclosing a copy of a reply to him from the Chief Executive of the Radiocommunication Agency.

Dear Mr. Burns,

Thank you for your letter of 12th August to Mr McLoughlin enclosing a copy of the response from Mr Charles Shelton, Secretary of the Chelmsford Amateur Radio Society, to the consultative document on the future management of the radio spectrum. I have been asked to reply as the response relates to operational matters for which this Agency is responsible.

The radio spectrum is coming under increasing pressure as demand for business and non-business use of radio has grown. The consultative document outlined a large number of options for making more efficient use of the limited amount of spectrum that is available.

The Chelmsford Amateur Radio Society's response is one of the very many that have been received from a wide cross-section of radio users. The responses are now in the process of being analysed and Ministers will be announcing their decisions in due course. All the submissions received, including that of the Chelmsford radio amateurs, will be carefully considered and taken fully into account.

The Agency takes an active role in facilitating amateur radio and has an ongoing dialogue with the Radio Society of Great Britain, which represents radio amateurs, and others in the radio amateur world. I cannot, of course, anticipate Ministers' decisions on future spectrum management. But I am happy to confirm in general terms that the Agency well understands and appreciates the contribution made by amateur radio. Indeed, the consultation document clearly states the Government's desire to maintain access to the radio spectrum for the widest possible range of users and not to squeeze out non-business users of radio such as amateur radio. It also states that auctions are not considered to be suitable for the amateur radio bands as individual amateurs do not enjoy exclusive rights over particular channels.

In addition to issues of spectrum pricing, the document specifically sought views on the future role of the Agency and the extent to which private sector spectrum management organisations might play a greater part. I read with interest your constituents' views that the Agency should continue to have the major role. Again, it would be wrong for me to anticipate Ministers' decisions. But I can assure you that the Society's views will be taken into account.

Yours sincerely, Signed Jim Norton,

We will keep members informed of any further developments.

RESTORING OLDEQUIPMENT - Geoff, G7KLV

Continued from last month, "Restoring the CR100 Receiver".

The AGC circuits had been removed at some stage by a previous owner. If the set had been slightly damp there could possibly have been leakage from adjacent HT circuits on the tag boards. Many years ago I had found it advisable to mount earthy components between high impedance low level circuits and HT circuits on tag boards, also I replaced most of the resistors and capacitors.

Fortunately I had a CR100 handbook and I started to align the crystal IF's. Surprise, surprise! Paraphrased, the instructions said "Connect up the alignment 'scope and apply the frequency modulated ganging oscillator to the mixer grid etc. etc." All very hi-tech in those far off days 50 years ago! After a lot of trial and error I managed to line up the IF's to resemble the response curves in the handbook without the specialised test equipment. Thank you Fred, G6FXM, it was a most fulfilling exercise.

Fred, G2HNF tells me that when he restored his CR100 he produced look alike replacements for the stud mounted decoupling capacitors. He also rewired his set by preforming the wiring harness. That shows dedication indeed, does it not!

Always full of good intentions I started to make something for the constructors' competition but with some of the distractions mentioned above and in spite of Chairman John's advice to get going in good time it was obvious, even to me, that my proposed entry would not be finished in time. I have therefore put the bits and pieces to one side with some notes to remind me where I had got to, ready to resume for next year's competition.

The latest distraction is a West German Schlumberger HFSSB Generator. It's an absolute cracker, lots of silver plating, beautifully constructed, very compact, germanium transistors but no handbook. An absolute bargain at £3 but unfortunately it doesn't seem to give it's proper output. How dull life would be without a few interesting problems.

P.S. I must remember John's advice and not leave it too late to finish my entry for the next constructors competition.

73 from Roy & Ela Martyr,
G3PMX & G6HKM

☎ (0245)360545

1, High Houses,
Mashbury Road,
Great Waltham,
CHELMSFORD
Essex, CM3 1EL

WANTED - for a friend who is learning morse, any slow morse cassettes, best prices paid. Charles. G0GJS, ☎ (0245)256654